

MAR 01 2010

Application No. 10/577,666

Docket No. R2184,0492/P492

AMENDMENTS TO CLAIMS

1. (Currently amended) A semiconductor device comprising:
a semiconductor chip;
a driver transistor mounted on said semiconductor chip;
a monitor transistor for detecting electric current flowing in said driver transistor; and
wherein the monitor transistor includes a plurality of transistors connected in parallel;
wherein the plural transistors are disposed at a periphery of an area of the semiconductor chip on which the driver transistor is mounted, such that the plural transistors are located around a center portion of the area of the semiconductor chip on which the driver transistor is mounted, and are not located in the center portion of the area of the semiconductor chip on which the driver transistor is mounted, such that the monitor transistor is not located in the center portion of the area of the semiconductor chip on which the driver transistor is mounted, and wherein the center portion of the area of the semiconductor chip has no transistor formed thereon; and
wherein the plural transistors are located relative to the semiconductor chip and the driver transistor such that changes in a property of the monitor transistor caused when force is applied to the semiconductor chip are balanced.

2. (Currently amended) A semiconductor device comprising:
a semiconductor chip;
a driver transistor mounted on said semiconductor chip;
a monitor transistor for detecting electric current flowing in said driver transistor; and
wherein the monitor transistor includes a plurality of transistors connected in parallel;
wherein the plural transistors are disposed within an area of the semiconductor chip on which the driver transistor is mounted, and wherein the plural transistors are located around a center portion of the area of the semiconductor chip on which the driver transistor is mounted, and wherein the plural transistors are not located in the center portion of the area of the semiconductor chip on which the driver transistor is mounted, such that the monitor transistor is not located in the center

Application No. 10/577,666

Docket No. R2184.0492/P492

portion of the area of the semiconductor chip on which the driver transistor is mounted, and wherein the center portion of the area of the semiconductor chip has no transistor formed thereon; and wherein the plural transistors are located relative to the semiconductor chip and the driver transistor such that changes in a property of the monitor transistor caused when force is applied to the semiconductor chip are balanced.

3. (Original) The semiconductor device as claimed in claim 1, wherein the plural transistors are disposed on the semiconductor chip at equal intervals.

4. (Original) The semiconductor device as claimed in claim 1, wherein the driver transistor and the monitor transistor are MOS transistors.

5. (Currently amended) A voltage regulator comprising:
a semiconductor chip;
a constant voltage part including a driver transistor mounted on said semiconductor chip;
an output current detection circuit part including a monitor transistor for detecting electric current flowing in said driver transistor; and
wherein the monitor transistor includes a plurality of transistors connected in parallel;
wherein the plural transistors are disposed at a periphery of an area of the semiconductor chip on which the driver transistor is mounted, such that the plural transistors are located around a center portion of the area of the semiconductor chip on which the driver transistor is mounted, and are not located in the center portion of the area of the semiconductor chip on which the driver transistor is mounted, such that the monitor transistor is not located in the center portion of the area of the semiconductor chip on which the driver transistor is mounted, and wherein the center portion of the area of the semiconductor chip has no transistor formed thereon; and
wherein the plural transistors are located relative to the semiconductor chip and the driver transistor such that changes in a property of the monitor transistor caused when force is applied to the semiconductor chip are balanced.

Application No. 10/577,666

Docket No. R2184.0492/P492

6. (Currently amended) A voltage regulator comprising:
a semiconductor chip;
a constant voltage part including a driver transistor mounted on said semiconductor chip;
an output current detection circuit part including a monitor transistor for detecting electric current flowing in said driver transistor; and
wherein the monitor transistor includes a plurality of transistors connected in parallel;
wherein the plural transistors are disposed within an area of the semiconductor chip on which the driver transistor is mounted, and wherein the plural transistors are located around a center portion of the area of the semiconductor chip on which the driver transistor is mounted, and wherein the plural transistors are not located in the center portion of the area of the semiconductor chip on which the driver transistor is mounted, such that the monitor transistor is not located in the center portion of the area of the semiconductor chip on which the driver transistor is mounted, and wherein the center portion of the area of the semiconductor chip has no transistor formed thereon; and
wherein the plural transistors are located relative to the semiconductor chip and the driver transistor such that changes in a property of the monitor transistor caused when force is applied to the semiconductor chip are balanced.

7. (Original) The voltage regulator as claimed in claim 5, wherein the plural transistors are disposed on the semiconductor chip at equal intervals.

8. (Original) The voltage regulator as claimed in claim 5, wherein the output current detection circuit part is configured to change the electric current flowing in the monitor transistor into electric voltage and output the electric voltage.

9. (Original) The voltage regulator as claimed in claim 5, wherein the constant voltage circuit part further includes a reference voltage generation circuit for generating and outputting a reference voltage and an operational amplifier circuit including a differential pair for controlling the operation of the driver transistor, wherein the output current detection circuit part is configured to supply an electric current to the differential pair of the operational amplifier circuit, wherein the

Application No. 10/577,666

Docket No. R2184.0492/P492

electric current supplied to the differential pair is proportional to the electric current flowing in the monitor transistor.

10. (Original) The voltage regulator as claimed in claim 5, wherein the driver transistor and the monitor transistor are MOS transistors.

11. (Original) The voltage regulator as claimed in claim 5, wherein the constant voltage circuit part and the output current detection circuit part are integrated on a single integrated circuit.